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10/030,814	01/14/2002	Wataru Matsumoto	2611-0168P	5689

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EXAMINER

DILDINE JR, R STEPHEN

ART UNIT PAPER NUMBER

2133

DATE MAILED: 09/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/030,814

Applicant(s)

MATSUMOTO, WATARU

Examiner

R. Stephen Dildine

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>14 January, 2001</u> . | 6) <input type="checkbox"/> Other: ____  |

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***Oath/Declaration***

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

a) The declaration should refer to the PCT International Application (PCT/JP01/03952) under which the current application is filed as the 35 U.S.C. 371 national stage entry of.

b) Further, the declaration claims priority under 35 U.S.C. 119 to Japanese foreign application 2000-150535. This priority claim, however, is not made in the specifications and a copy of the foreign priority document has not been submitted.

***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 22 May 2000. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b). Note that although the application is a 35 USC 371 national stage entry and does not require a certified copy of the foreign priority documents, it does require the filing of a copy of the certified copy of the foreign priority documents; see MPEP 1893.03(c).

***Drawings***

Figures 14(a) through Figure 19 should be designated by legends such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). In Figure 5 "RECLUSIVE" (two occurrences) should be corrected to -- RECURSIVE--. In Figure 7 "HUMMING" (two occurrences) should be corrected to -- HAMMING --.

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Specification*

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: Turbo Coder Having Interleaver and Method of Interleaving Data for Turbo Encoding.

The disclosure is objected to because of the following informalities: page 8, lines 20 and 24; page 9, lines 1 and 9; page 14, line 20; and other places throughout the specification "humming" should be -- Hamming --. Throughout the specification, applicant has used the word "reclusive" to describe convolutional encoders/decoders; perhaps -- recursive -- was meant instead (see the cited definition of "reclusive"). Throughout the specification, applicant has used the phrase "latin square" (for a  $M \times N$  rectangular matrix where  $M \neq N$ ) instead of -- Latin rectangle --; see the cited definitions for both terms.

Appropriate correction is required.

It is noted that the use of the word "consternation" at page 32, line 10 is an unusual usage, but from the definition cited, applicant's meaning is not unclear.

*Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2 and 7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. These claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Nowhere in the application does the applicant define "inter-signal-point distance".

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Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Both claim 1 and 6 recite "an input buffer of "M (abscissa: prime number)= $2^m+1$ "X"N (ordinate: natural number)= $2^m$ " which is not disclosed in the specification. The only buffers disclosed are 17 X 17 (Figs. 9-13) and 10 X 53 (Figs. 16-18), neither of which is  $2^m+1$  X  $2^m$  where  $2^m+1$  is a prime number (e.g. 16 X 17 (m=4) or 4 X 5 (m=2)).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant uses the term "reclusive" which has the meaning of seeking or preferring seclusion or isolation. It is unclear how a convolutional encoder can be said to be organized to be seeking or preferring isolation. It is suggested that applicant meant to use the word -- recursive --, which means an expression, such as a polynomial, in which each term is determined by application of a formula to preceding terms of the expression.

Claims 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 6 recites "and making a mapping pattern of an Nth row equal to that of the first row to generate an M X N mapping pattern" which means that all the mapping pattern for all rows are equal to that of the first row, which is contrary to the description of the invention in applicants' specification.

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Claims 3 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As to claim 3, parent claim 1 states "input buffer of " $M$  (abscissa: prime number) $=2^m+1$ " X " $N$  (ordinate: natural number) $=2^m$ " ( $m$  is an integer)", but this is contradicted by claim 3's use of the term "latin square" instead of -- Latin rectangle --. As to claim 8, parent claim 6 states "input buffer of " $M$  (abscissa: prime number) $=2^m+1$ " X " $N$  (ordinate: natural number) $=2^m$ " ( $m$  is an integer)", but this is contradicted by claim 8's use of the term "latin square" instead of -- Latin rectangle --. See the cited definitions of Latin square and Latin rectangle.

#### ***Information Disclosure Statement***

The information disclosure statement filed 14 January 2002 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. A copy of EP 0952673 was not provided. The information disclosure statement filed 14 January 2002 has been placed in the application file, but EP 0952673 has not been considered. All of the other documents were considered as shown on the PTO-1449.

#### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Belaiche is cited to show, in Figures 4-6, an interleaver of  $2^m+1$  rows and  $2^m$  columns (where  $m=2$ ) in which generates  $M-1$  ( $=2^m = 4$ ) random sequences of data. As in applicants' claimed invention, data is read from the matrix in "units of columns" (i.e. column wise order) (see Figures 4-6 of Belaiche). The mapping patterns of Belaiche's rows differ from each other rather than having a "mapping pattern of an  $N$ th row equal to that of the first row" as in applicants' claimed invention. Belaiche further teaches use of his interleaver in a turbo encoder (see ¶ [0005]), which usually have a first recursive organization convolutional encoder for convolutionally encoding two information bit sequences to output first redundant data; and a second recursive organization convolutional encoder for convolutionally encoding the information bit sequences subjected to the interleave process to output second redundant data (see, for instance, Figure 10(a) of Fukumasa).

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Ohbuchi et al. is cited to show, in Figure 23, an interleaver of  $2^m+1$  rows and  $2^m$  columns (where  $m=2$ ) in which generates  $M-1$  ( $=2^m = 4$ ) random sequences of data. Ohbuchi et al. differs from applicants' claimed invention in that data is read from the matrix in random order, rather than in "units of columns" (i.e. column wise order) (see Ohbuchi et al. ¶ [0018]) and the mapping patterns of his rows differ from each other rather than having a "mapping pattern of an Nth row equal to that of the first row" as in applicants' claimed invention. Ohbuchi et al. further shows a turbo encoder having a first recursive organization convolutional encoder (50-1a, Figure 19) for convolutionally encoding two information bit sequences to output first redundant data ( $x_b$ ); and a second recursive organization convolutional encoder (50-1a, Figure 19) for convolutionally encoding the information bit sequences subjected to the interleave process to output second redundant data ( $x_c$ ).

Maru is cited to show an interleaver for a turbo encoder based on a prime number  $p$ , which interleaves blocks of length  $R$ .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Stephen Dildine whose telephone number is 703-305-5524. The examiner can normally be reached on M, Tu, Th, F 5:55 am to 4:25 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 703-305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



R. Stephen Dildine

R. Stephen Dildine  
Primary Examiner  
Art Unit 2133